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Title: ***Understanding feedbacks in human-natural systems: development and adoption of sustainable agricultural practices in the Chaco Salteño.***

The Argentinian Chaco is one of the last agricultural frontiers in South America and has experienced very high deforestation rates in the last three decades. Large-scale soy plantations have contributed significantly to deforestation. This has caused displacement of indigenous communities and small-scale criollos cattle farmers, with consequent increased pressure on remaining forests. In order to address these challenges, the Argentinian government recently issued a national workplan:"Plan Nacional de Manejo de Bosque con Ganaderia Integrada (National Plan of Forest Management with Integrated Livestock; PNMBGI).

We examine feedbacks between coupled human and natural systems by analyzing the development and adoption of sustainable land management practices (SLMP) mitigating deforestation and land degradation. Therefore, the aim of this study is to characterize the relationship between the level of environmental degradation, socio-economic, cultural and relational factors and the potential adoption of PNMBGI among small-scale farmers.

We assess the level of environmental degradation (deforestation and soil erosion) at the landscape level in some key sites in Northern Argentina. This is accomplished by using the WOCAT (World Overview of Conservation Approaches and Technologies) methodology (interviews and land mapping). Further, we conduct a household survey on small-scale farmers household characteristics. Decisions to adopt new technologies are often the results of choices of their network of family and friends as well to the participation common institutions. To disentangle these learning and diffusion patterns we include Social Networks Analysis (SNA) metrics in our study as well. Multinomial logit models will be used in order to identify key drivers for the adoption of sustainable land management practices. Explanatory variables include the level of environmental degradation; socio-economic profiles of the household (e.g. education and income) and SNA metrics.

Given the rate at which land degradation is taking place in the Argentinean Chaco, there is an urgent need to understand how such degradation feeds back into adaptive SLMP responses. At the same time, it will be crucial to better understand how environmental, cultural, socio-economic and relational aspects contribute to designing locally adapted public policies.